

# **Clinical Excellence Initiatives to improve Healthcare Safety & Quality**

*An Insight into the importance of initiatives to  
improve clinical excellence, and how GS1  
standards can facilitate this*

**Professor Cliff Hughes AO  
21 March 2012**



The International Society  
for Quality in Health Care



CLINICAL  
EXCELLENCE  
COMMISSION



# Accommodating Mistakes?

I cdnuolt blveiee taht I cluod aulacly uesdnatnrd waht I was redanig. The phaonmneal pweor of the hmuan mnid. Aoccdrnig to rscheearch at Cmabrigde Uinervtisy, itd eosn't mtttaer in waht oredr the ltteers in a wrod are, the olny iprmoatnt tihng is taht the frist and lsat ltteer be in the rghit pclae. The rset can be a taotl mses and you can sitll raed it wouthit a porbelm. Tihs is bcuseae the huamn mnid deos not raed ervey lteter by istlef, but the wrod as a wlohe. Amzanig huh? yaeh and I awlyas thought slpeling was ipmorantt!

# Safe Driving - NSW

Road Traffic Accident Fatalities 1934-2003



# Mission

- To build confidence in health care by making it demonstrably better and safer for patients and a more rewarding workplace

# The Role of the CEC

- To promote best practice systems for clinical quality and patient safety.
- To support Area Health Services in the implementation of their clinical systems
- To monitor the state of clinical quality and patient safety in the NSW Health system
- To provide education and training for clinicians, consumers and health managers on the implementation of clinical quality systems
- To provide advice to the Minister on matters relating to clinical quality and patient safety.

# Clinical Governance:

*"A framework through which ... organisations are accountable for continually improving the quality of their services and safeguarding high standards of care by creating an environment in which excellence in clinical care will flourish." (Scully and Donaldson, 1998)*

# Call to Action

- To ensure that patient safety and quality care are at the heart of what you do
- To lead a quality and safety culture and empower and support clinical teams to deliver care of the highest possible standard

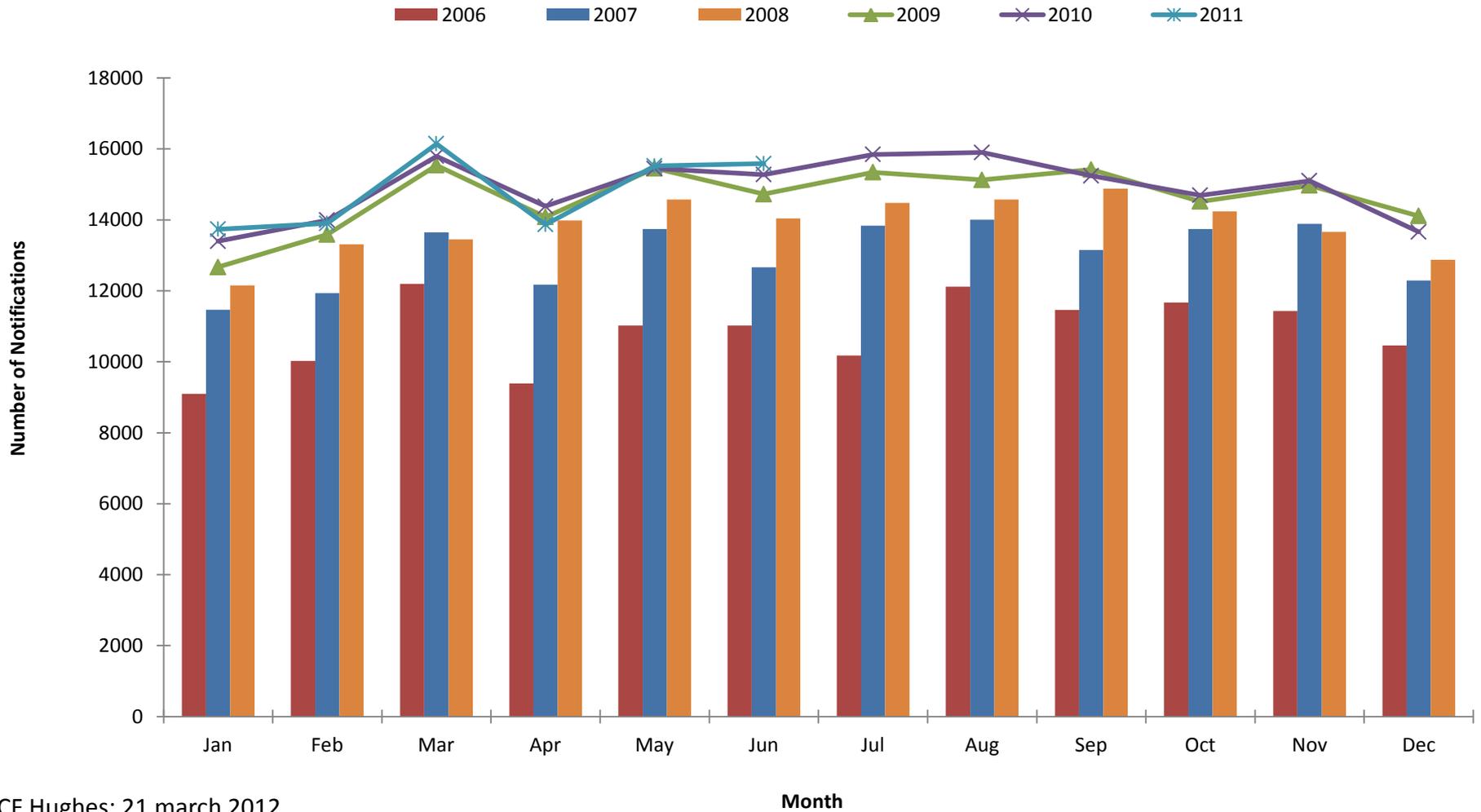
# Will you take these challenges?

Can you demonstrate in the next 3 months that you:

- Spend more than 25% of the Board's meeting time on quality
- Make quality the first item on the agenda
- Routinely hear first hand patient stories of care that occurred at the organisation
- Set a broad spectrum of patient safety targets to monitor

# IIMS enthusiasm

## NSW Trend - IIMS Monthly Notifications



# The CEC

A resource for improvement



## Between the Flags

Keeping patients safe

A statewide initiative of the Clinical Excellence Commission





# From the Beach to the Bed:

Lessons for the recognition and  
management of the deteriorating patient

Professor Cliff Hughes AO  
Clinical Excellence Commission  
21 March 2012



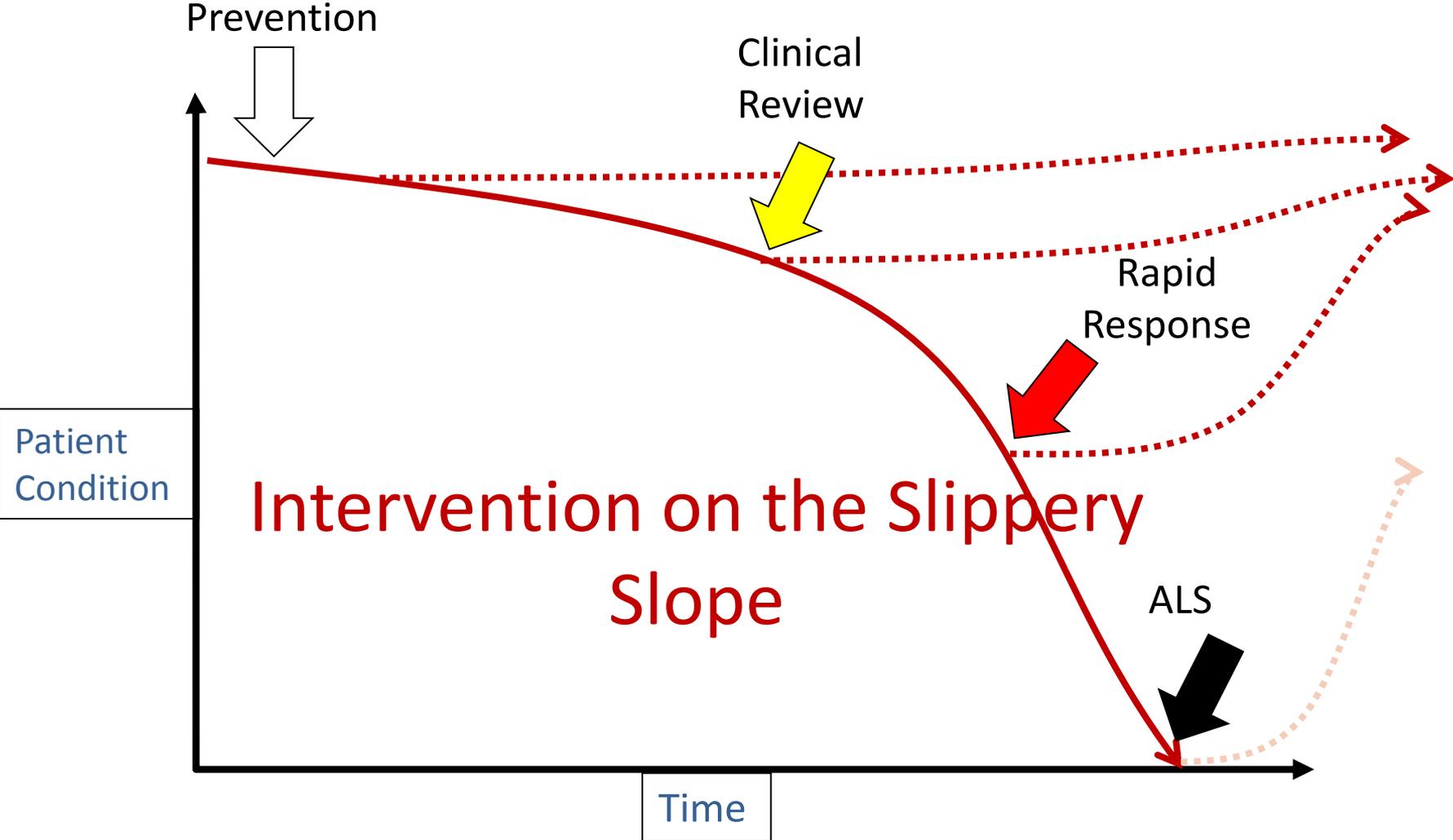
# The Problem

Missed opportunities to:

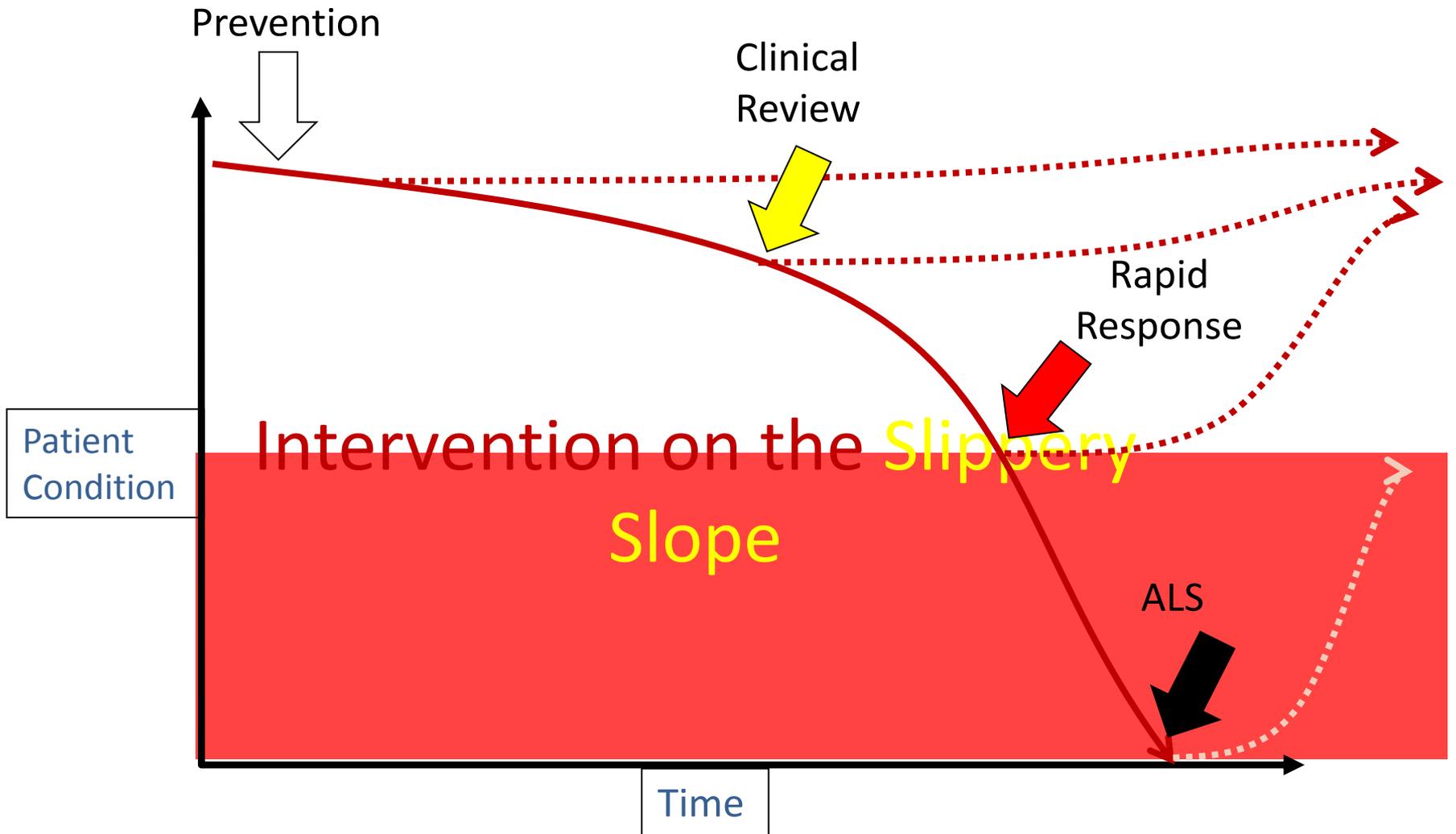
- prevent
- recognise
- escalate
- respond



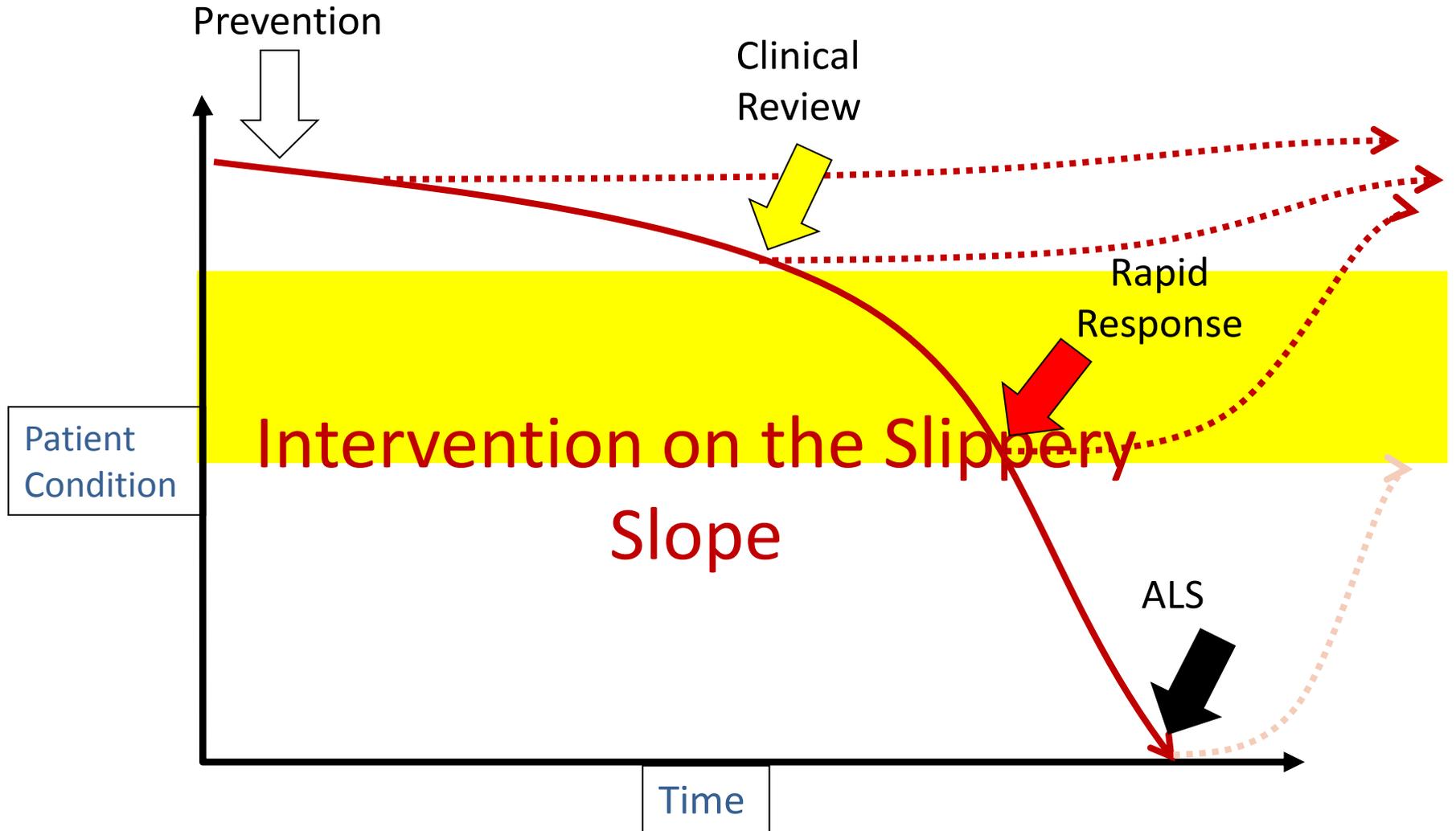
# The Solution



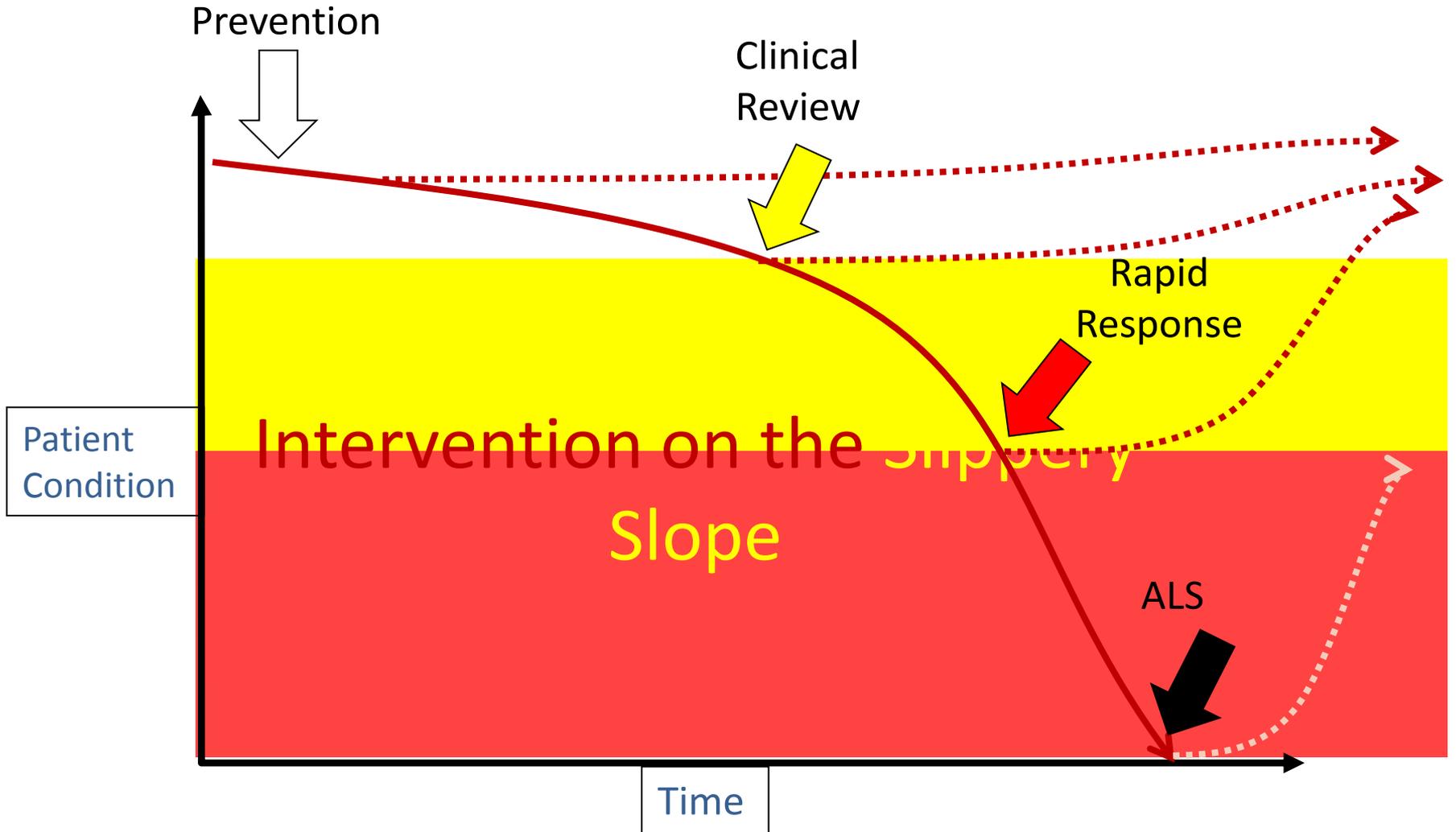
# The Solution



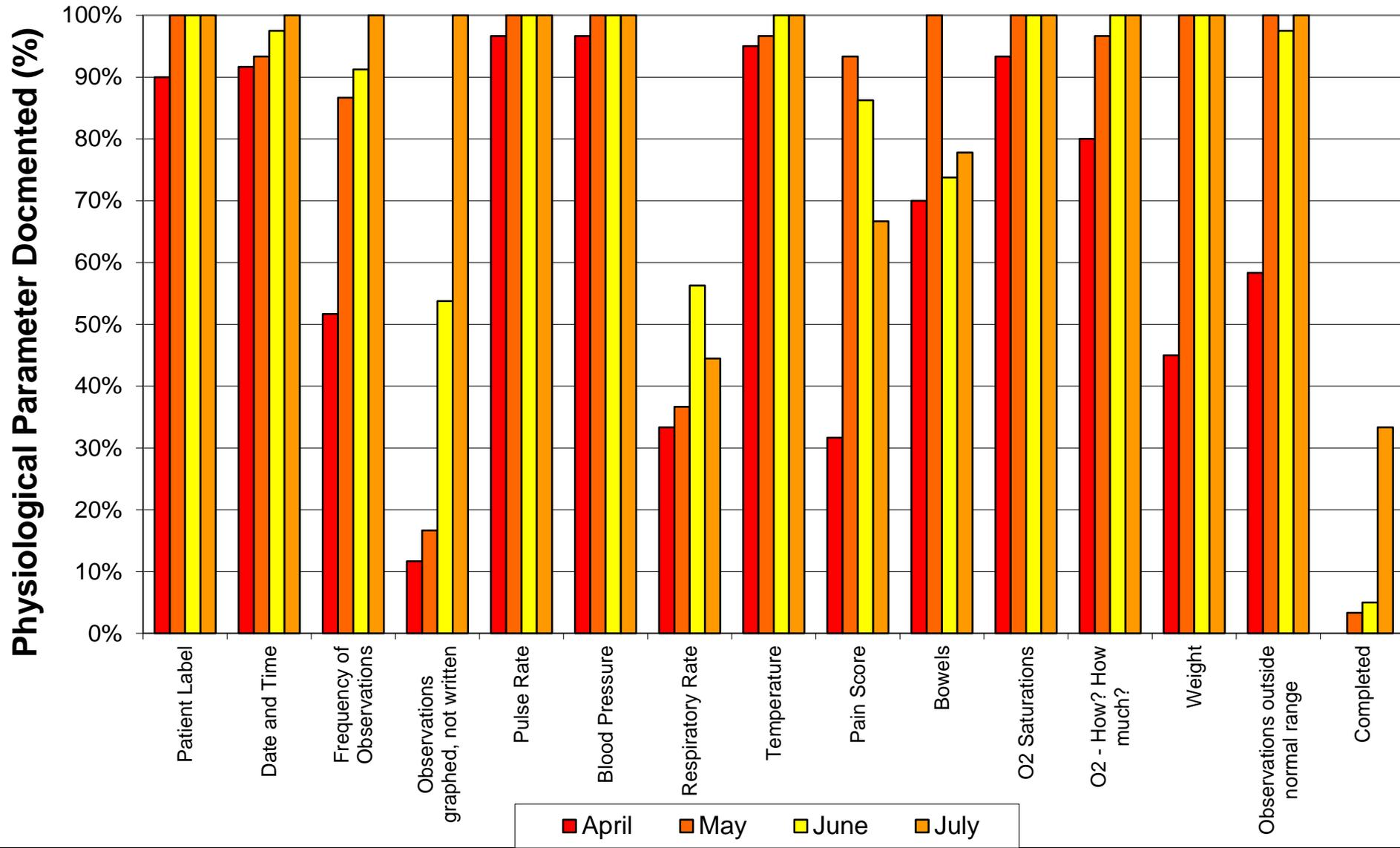
# The Solution



# The Solution



# Reliability of Observation





# Maternity

		FAMILY NAME	MRN
Facility: _____		GIVEN NAME	<input type="checkbox"/> FEMALE
<b>MATERNITY OBSERVATION CHART</b>		D.O.B. ____/____/____	M.O.
<input type="checkbox"/> Altered Calling Criteria		COMPLETE ALL DETAILS OR AFFIX PATIENT LABEL HERE	
Date _____ Time _____			
<b>AIRWAY / BREATHING</b>	Respiratory Rate (breaths per minute)	35 30 25 20 15 10 5	35 30 25 20 15 10 5
	SpO <sub>2</sub> %	100 95 90 85 80	100 95 90 85 80
O <sub>2</sub> Lpm Device/Mode			
<b>CIRCULATION</b>	Systolic Blood Pressure (mmHg)	200 190 180 170 160 150 140 130 120 110 100 90 80 70 60	200 190 180 170 160 150 140 130 120 110 100 90 80 70 60
	Diastolic Blood Pressure (mmHg)	130 120 110 100 90 80 70 60 50 40	130 120 110 100 90 80 70 60 50 40
	Heart Rate (beats per minute)	180 170 160 150 140 130 120 110 100 90 80 70 60 50 40	180 170 160 150 140 130 120 110 100 90 80 70 60 50 40
<b>NEUROLOGICAL</b>	Enter appropriate letter: A=Alert; V=Rousable only by voice (Consider GCS); P=Rousable only by central pain (conduct GCS); U=Unresponsive		
	A V P U		
	Deep tendon reflexes A=Absent, N=Normal D=Decreasing	L R	L R
Initials _____			

		FAMILY NAME	MRN
Facility: _____		GIVEN NAME	<input type="checkbox"/> FEMALE
<b>MATERNITY OBSERVATION CHART</b>		D.O.B. ____/____/____	M.O.
<input type="checkbox"/> Altered Calling Criteria		COMPLETE ALL DETAILS OR AFFIX PATIENT LABEL HERE	
Date _____ Time _____			
<b>Temperature (°C)</b>	40 39.5 39 38.5 38 37.5 37 36.5 36 35.5 35		
	Measured Cumulative Blood loss (mL)	3000 2500 2000 1900 1800 1700 1600 1500 1400 1300 1200 1100 1000 900 800 700 600 500 400 300 200 100	3000 2500 2000 1900 1800 1700 1600 1500 1400 1300 1200 1100 1000 900 800 700 600 500 400 300 200 100
<p>Instructions: on arrival to the postnatal environment, add antepartum, intrapartum and Measured Cumulative Blood loss as associated with the delivery event. Antepartum haemorrhage (APH) or bleeding needs to be assessed in the context of the period of gestation, the presence or absence of pain, and the location of the placenta. Remember, the observed blood loss may not reflect the total blood loss i.e. some of the loss may be concealed in the uterus. Any Intrapartum Haemorrhage requires a Clinical Review.</p> <p>Fetal Monitoring: The fetus should be monitored according to the period of gestation. A suspicious cardiotocograph (CTG) requires a Clinical Review, a pathological CTG requires a Rapid Response call.</p>			
<b>Blood Glucose</b>	Date _____ Time _____ BGL _____		
	Proteinuria Date _____ Time _____ NI _____ Trace to+ _____ 2+ _____		
<b>Output</b>	Date _____ Urine Output (ml) _____ Output Total (ml) _____		
	Initials _____		



Holes punched as per AS2926-1999  
 BINDING MARGIN - NO WRITING

# Maternity- front and back pages

	FAMILY NAME	MRN																																																																		
	GIVEN NAME	<input type="checkbox"/> FEMALE																																																																		
Facility: _____	D.O.B. ____/____/____	M.O. _____																																																																		
ADDRESS																																																																				
MATERNICITY OBSERVATION CHART																																																																				
LOCATION																																																																				
COMPLETE ALL DETAILS OR AFFIX PATIENT LABEL HERE																																																																				
<b>OTHER CHARTS IN USE</b> <input type="checkbox"/> Neurological <input type="checkbox"/> Pain / Epidural / Patient Controlled Analgesia <input type="checkbox"/> Fetal Heart Rate / Cardiographic (CTG) <input type="checkbox"/> Fluid Balance <input type="checkbox"/> Patient Held Diabetes Record <input type="checkbox"/> Partogram <input type="checkbox"/> Anticoagulant <input type="checkbox"/> Clinical Pathway <input type="checkbox"/> Other _____ <input type="checkbox"/> Vaginal Loss <input type="checkbox"/> Alcohol Withdrawal <input type="checkbox"/> Other _____																																																																				
<b>IF ANY OF THESE RISK FACTORS ARE PRESENT COMMENCE OBSERVATIONS ON THIS OBSERVATION CHART</b> <table border="0"> <tr> <td>Identified Clinical Risk Factors</td> <td>Other Risk Factors-</td> </tr> <tr> <td><input type="checkbox"/> Infection or Risk of Infection</td> <td>1. _____</td> </tr> <tr> <td><input type="checkbox"/> Bleeding or Risk of Bleeding</td> <td>2. _____</td> </tr> <tr> <td><input type="checkbox"/> Hypertension</td> <td>3. _____</td> </tr> <tr> <td></td> <td>4. _____</td> </tr> </table>			Identified Clinical Risk Factors	Other Risk Factors-	<input type="checkbox"/> Infection or Risk of Infection	1. _____	<input type="checkbox"/> Bleeding or Risk of Bleeding	2. _____	<input type="checkbox"/> Hypertension	3. _____		4. _____																																																								
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<b>Note:</b> • THIS IS NOT A PARTOGRAM • FOR ANTENATAL PATIENTS - use in conjunction with fetal heart monitoring documentation																																																																				
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MATERNICITY OBSERVATION CHART SMR10.010

**THESE INSTRUCTIONS EXPLAIN WHEN TO MAKE A CLINICAL REVIEW OR RAPID RESPONSE CALL, YOUR LOCAL ESCALATION PROTOCOL WILL EXPLAIN HOW TO MAKE A CALL**

**Clinical Review Criteria**

- Poor peripheral circulation
- Measured post partum cumulative blood loss 1000 - 1500mL
- Respiratory Rate 5 - 10 or 25 - 30 breaths per minute
- SpO<sub>2</sub> 90 - 95% and/or increase in oxygen (O<sub>2</sub>) requirement
- Systolic Blood Pressure 80 - 90 or 140 - 170mmHg
- Diastolic Blood Pressure 40-50 or 90 - 110mmHg
- Heart Rate 40 - 50 or 120 - 140 beats per minute
- Decline in Level of Consciousness from alert (A) to rousable only by voice (V) in the AVPU or new onset of confusion
- Decreasing or absent deep tendon reflexes
- Temperature 37.5 - 38.5°C or 35.5 - 36°C
- Anuria or urine output < 80ml total over 4 consecutive hours
- Greater than expected fluid loss
- Blood Glucose Level 2 - 4 mmol/L
- New, increasing or uncontrolled pain (including headache and chest pain)
- Suspicious Cardiocograph (CTG)
- Concern by any staff or family member

**IF A WOMAN HAS ANY ONE (1) OR MORE CLINICAL REVIEW CRITERIA PRESENT, YOU MUST CONSULT PROMPTLY WITH THE NURSE/MIDWIFE IN CHARGE AND ASSESS WHETHER A CLINICAL REVIEW IS NEEDED (REFER TO YOUR LOCAL ESCALATION PROTOCOL) AND**

- You MUST initiate appropriate clinical care
- Repeat and record observations as indicated by the woman's condition, but at least within 30 minutes
- If you called for a Clinical Review and it has not been attended within 30 minutes, you MUST ACTIVATE YOUR LOCAL RAPID RESPONSE (see below)
- If the woman's observations enter the RED Zone while you are waiting for a Clinical Review, you MUST ACTIVATE YOUR LOCAL RAPID RESPONSE (see below)
- You may call for a Clinical Review at any time if worried about a woman or are unsure whether to call.

You should consider

- Whether the abnormal observations reflect deterioration in the woman's condition
- What is usual for the woman or if there are altered calling criteria (see front of chart)
- Whether there is an adverse trend in observations

**Rapid Response Criteria**

- ALL respiratory and cardiac arrests
- Airway obstruction or stridor
- Seizures
- Deterioration not reversed within 1 hour of Clinical Review
- Patient deteriorates further, before or during Clinical Review
- Arterial Blood Gas: P<sub>a</sub>O<sub>2</sub> < 60, or P<sub>a</sub>CO<sub>2</sub> > 80, or pH < 7.2, or BE < -5
- Venous Blood Gas P<sub>v</sub>CO<sub>2</sub> > 85 or pH < 7.2
- Respiratory Rate ≤ 5 or ≥ 30 breaths per minute
- SpO<sub>2</sub> ≤ 90% and/or increase in oxygen (O<sub>2</sub>) requirement
- Systolic Blood Pressure ≤ 80 or ≥ 170mmHg
- Diastolic Blood Pressure < 40mmHg or ≥ 110mmHg
- Heart Rate ≤ 40 or ≥ 140 beats per minute
- Only responds to central pain (P) or unresponsive (U), or sudden decrease in Level of Consciousness of ≥ 2 points on GCS
- Temperature ≥ 38.5°C or ≤ 35.5°C
- Blood Glucose Level < 2 mmol/L
- Pathological Cardiocograph (CTG)
- Serious concern by any staff member or family member

**IF A WOMAN HAS ANY ONE (1) RAPID RESPONSE CRITERION PRESENT, CALL FOR A RAPID RESPONSE (REFER TO YOUR LOCAL ESCALATION PROTOCOL) AND**

- You MUST initiate appropriate clinical care
- Inform the Nurse/Midwife in Charge
- Repeat observations as indicated by the woman's condition

**CHECK THE CLINICAL RECORD FOR ALTERATIONS TO CALLING CRITERIA WHICH MAY AFFECT WHETHER A CLINICAL REVIEW OR RAPID RESPONSE CALL IS INDICATED**

**DOCUMENTATION**

- Write interventions on the front of the chart under 'interventions'
- Write treatment, escalation process, and outcome in the clinical record
- Write date, signature and designation with each entry

Holes punched as per AS228-1999 BINDING MARGIN - NO WRITING

# Paediatric Charts- front and back pages

<b>NSW HEALTH</b>		FAMILY NAME		MRN	
		GIVEN NAME		<input type="checkbox"/> MALE <input type="checkbox"/> FEMALE	
Facility: _____		D.O.B. ____/____/____	M.O. _____		
<b>STANDARD PAEDIATRIC OBSERVATION CHART (SPOC)</b>		ADDRESS			
		LOCATION			
<b>1-4 Years</b>		COMPLETE ALL DETAILS OR AFFIX PATIENT LABEL HERE			
OTHER CHARTS IN USE					
<input type="checkbox"/> Fluid Balance		<input type="checkbox"/> Insulin Infusion		<input type="checkbox"/> Other _____	
<input type="checkbox"/> Neurological		<input type="checkbox"/> Pain / Epidural / Patient Control Analgesia		<input type="checkbox"/> Other _____	
<input type="checkbox"/> Neurovascular				<input type="checkbox"/> Other _____	
<b>VARIATIONS TO FREQUENCY OF OBSERVATIONS</b>					
Date					
Time					
Frequency Required					
Medical or Rapid Response Officer Name					
Signature					
<b>ALTERATIONS TO CALLING CRITERIA (MUST BE REVIEWED WITHIN 48 HOURS OR EARLIER IF CLINICALLY INDICATED) Any alteration MUST be signed by a Medical Officer and confirmed by the Attending Medical Officer</b>					
Date					
Time					
Next review - date & time					
Respiratory Rate					
SpO <sub>2</sub>					
Heart Rate					
Other					
Medical Officer name					
Medical Officer signature					
Attending Medical Officer signature					
<b>INTERVENTIONS/COMMENTS</b>					
	DATE	TIME			
1.					
2.					
3.					
4.					
5.					
6.					
7.					
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9.					

STANDARD PAEDIATRIC OBSERVATION CHART 1-4 YEARS SMR110.017

THESE INSTRUCTIONS EXPLAIN WHEN TO MAKE A CLINICAL REVIEW OR RAPID RESPONSE CALL, YOUR LOCAL ESCALATION PROTOCOL WILL EXPLAIN HOW TO MAKE A CALL

**Blue Zone Actions**

IF A CHILD HAS ANY ONE (1) BLUE ZONE CRITERION PRESENT YOU **MUST** INCREASE THE FREQUENCY OF OBSERVATIONS AS CLINICALLY APPROPRIATE, AND

- You **MUST** initiate appropriate clinical care
- Manage anxiety, pain and review oxygenation in consultation with the nurse in charge
- You may call for a Clinical Review or Rapid Response at any time if worried about a patient or are unsure whether to call

You should also consider

- Whether abnormal observations reflect deterioration in your patient
- What is usual for your patient or if there are altered calling criteria (see front of chart)
- Whether there is an adverse trend in observations

**Additional Yellow Zone Criteria**

- Increasing oxygen requirement
- Poor peripheral circulation
- Greater than expected fluid loss
- Reduced urine output or anuria (<1 ml/kg/hr)
- BGL 2-3mmol/L
- Altered mental state: Agitation, Combative or Inconsolable
- New onset of fever > 38.5°C
- New, increasing or uncontrolled pain
- Concern by any staff or family member

IF A CHILD HAS ANY ONE (1) OR MORE CLINICAL REVIEW CRITERIA PRESENT, YOU **MUST** CONSULT PROMPTLY WITH THE NURSE IN CHARGE AND ASSESS WHETHER A CLINICAL REVIEW IS NEEDED (REFER TO YOUR LOCAL PROTOCOL) AND

- You **MUST** initiate appropriate clinical care
- Repeat and record observations as indicated by the patient's condition, but at least within 30 minutes
- If you called for a Clinical Review and it has not been attended within 30 minutes, you **MUST** ACTIVATE YOUR LOCAL RAPID RESPONSE
- If the patient's observations enter the **RED** Zone while you are waiting for a Clinical Review, you **MUST** ACTIVATE YOUR LOCAL RAPID RESPONSE (See below)
- You may call for a Clinical Review or Rapid Response at any time if you are worried about a patient or are unsure whether to call.

You should also consider

- Whether abnormal observations reflect deterioration in your patient
- What is usual for your patient or if there are altered calling criteria (see front of chart)
- Whether there is an adverse trend in observations

**Additional Red Zone Criteria**

- New onset of stridor
- Respiratory arrest
- Cardiac arrest or circulatory collapse
- Significant bleeding
- Sudden decrease in level of consciousness of ≥2 points on GCS
- BGL < 2mmol/L or symptomatic
- New or prolonged seizure activity
- 3 or more simultaneous 'Yellow Zone' observations
- Deterioration not reversed within 1 hour of Clinical Review
- Patient deteriorates further before, during or after Clinical Review
- Serious concern by any staff or family member

IF A CHILD HAS ANY ONE (1) RED ZONE CRITERION PRESENT, CALL FOR A RAPID RESPONSE (REFER TO YOUR LOCAL ESCALATION PROTOCOL) AND

- You **MUST** initiate appropriate clinical care
- Inform the Nurse in Charge
- Repeat observations as indicated by patient's condition

CHECK THE CLINICAL RECORD FOR ADVANCE CARE DIRECTIVES OR ALTERATIONS TO CALLING CRITERIA WHICH MAY AFFECT WHETHER A CLINICAL REVIEW OR RAPID RESPONSE CALL IS INDICATED

**DOCUMENTATION**

- Write interventions on the front of the chart under 'interventions'
- Write treatment, escalation process, and outcome in the clinical record
- Write date, signature and designation with each entry

Holes punched as per AS2225-1999  
BINDING MARGIN - NO WRITING



SMR110017

# Paediatrics- Neonatal /Under 30 days

<b>NSW HEALTH</b>		FAMILY NAME	MRN
Facility: _____		GIVEN NAME	<input type="checkbox"/> MALE <input type="checkbox"/> FEMALE
PAEDIATRIC OBSERVATION CHART NEONATAL / UNDER 1 MONTH (CORRECTED)		D.O.B. ____/____/____	M.O. / UNDER 1 MONTH (CORRECTED)
ADDRESS		LOCATION	
<input type="checkbox"/> Altered Calling Criteria COMPLETE ALL DETAILS OR AFFIX PATIENT LABEL HERE			
Date			
Time			
RESPIRATORY RATE (breaths per minute)	110		110
	105		105
	100		100
	95		95
	90		90
	85		85
	80		80
	75		75
	70		70
	65		65
	60		60
	55		55
	50		50
	45		45
	40		40
	35		35
	30		30
	25		25
	20		20
	15		15
10		10	
5		5	
Severe		Severe	
Moderate		Moderate	
Mild		Mild	
Normal		Normal	
SPO <sub>2</sub> (in % of O <sub>2</sub> )	100		100
	95		95
	90		90
	85		85
	80		80
	75		75
	<70		<70
	Probe Change		Probe Change
Oxygen	L/min or %		L/min or %
	Device		Device
HEART RATE (beats per minute)	210		210
	200		200
	190		190
	180		180
	170		170
	160		160
	150		150
	140		140
	130		130
	120		120
	110		110
	100		100
90		90	
80		80	
70		70	
60		60	
Capillary Refill	≥3 Seconds		≥3 Seconds
	<3 Seconds		<3 Seconds
Blood Pressure (mmHg)	Systolic		Systolic
	Diastolic		Diastolic
	Mean		Mean
Initials			

Increase Frequency of Observations  Clinical Review  Rapid Response

<b>NSW HEALTH</b>		FAMILY NAME	MRN
Facility: _____		GIVEN NAME	<input type="checkbox"/> MALE <input type="checkbox"/> FEMALE
PAEDIATRIC OBSERVATION CHART NEONATAL / UNDER 1 MONTH (CORRECTED)		D.O.B. ____/____/____	M.O. / UNDER 1 MONTH (CORRECTED)
ADDRESS		LOCATION	
<input type="checkbox"/> Altered Calling Criteria COMPLETE ALL DETAILS OR AFFIX PATIENT LABEL HERE			
Date			
Time			
DISABILITY	Alert		Alert
	Verbal/Touch		Verbal/Touch
	Pain		Pain
	Unresponsive		Unresponsive
Enter appropriate letter: A= Alert V= Rousable only by voice (consider GCS). P= Rousable only by central pain (conduct GCS). U=Unresponsive			
Pain Score	Severe (≥7)		Severe (≥7)
	Moderate (4-6)		Moderate (4-6)
	Mild (1-3)		Mild (1-3)
	Nil		Nil
EXPOSURE	41		41
	40.5		40.5
	40		40
	39.5		39.5
	39		39
	38.5		38.5
	38		38
	37.5		37.5
	37		37
	36.5		36.5
	36		36
	35.5		35.5
35		35	
34.5		34.5	
34		34	
Crib Temperature (°C)	Temperature		Temperature
	Type of crib		Type of crib
Colour	Cyanosed		Cyanosed
	Jaundice		Jaundice
BGL	> 10 mmol/L		> 10 mmol/L
	3-10 mmol/L		3-10 mmol/L
Weight	2.6-2.9 mmol/L		2.6-2.9 mmol/L
	1.7-2.5 mmol/L		1.7-2.5 mmol/L
Initials	< 1.7 mmol/L		< 1.7 mmol/L
	Weight		Weight

**CONSIDER EARLIER ESCALATION OF PATIENTS WITH**

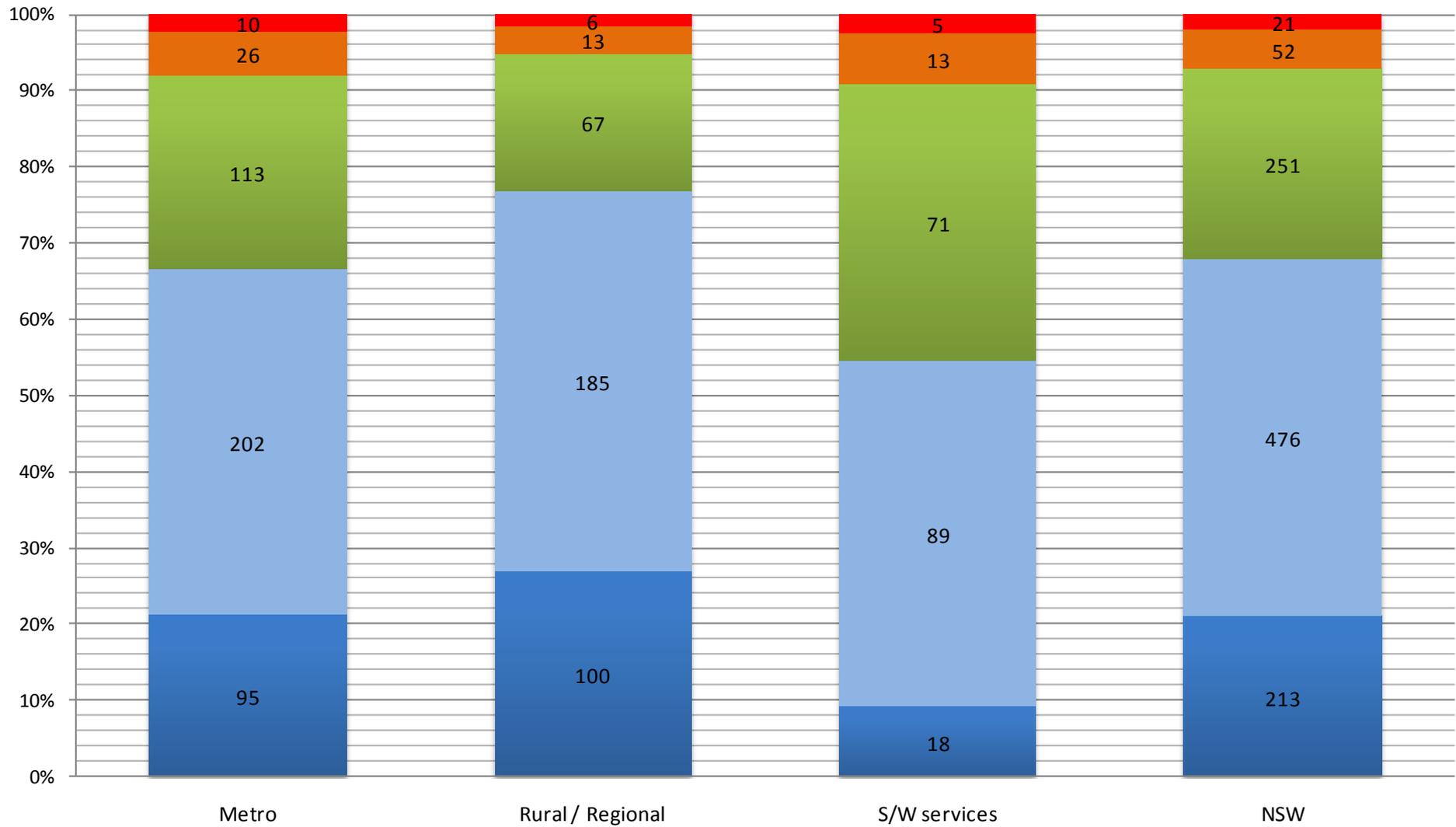
- Chronic or complex conditions
- Post-operative
- Pre-Existing cardiac or respiratory conditions
- Opioid infusions
- Preterm or post-term neonates
- Congenital conditions

**ADDITIONAL CRITERIA FOR ESCALATION ON BACK PAGE**

	MILD	MODERATE	SEVERE
Airway	• Secretions cleared by self	• Secretions needing suction • Partial airway obstruction	• New onset of stridor • Imminent airway obstruction • Congenital airway blockage
Behaviour & Feeding	• Normal • Normal cry	• Unsettled • Difficulty feeding / sucking • May not tolerate tube feeds	• Agitated • Irritable • Exhausted / Drowsy • Unable to feed / suck • Not tolerating tube feeds
Respiratory Rate	• Mildly increased	• Respiratory rate in the yellow zone	• Respiratory rate in the red zone • Decreasing (exhaustion)
Accessory Muscle Use	• None /Minimal	• Moderate subcostal / intercostal / sternal recession • Intermittent grunt • Tracheal tug • Nasal flaring	• Severe recession • Gaspings • Grunting • Head Bobbing • Extreme pallor • Mottled • Cyanosis
Apnoeic Episodes	• None	• Abnormal patterns in breathing	• Apnoeic episodes
Oxygen	• No oxygen requirement	• Mild Hypoxaemia, corrected by oxygen • 40-60% oxygen • Increasing oxygen requirement	• Hypoxaemia, may not be corrected by oxygen • Requires more than 60% oxygen • Requires CPAP or IPPV

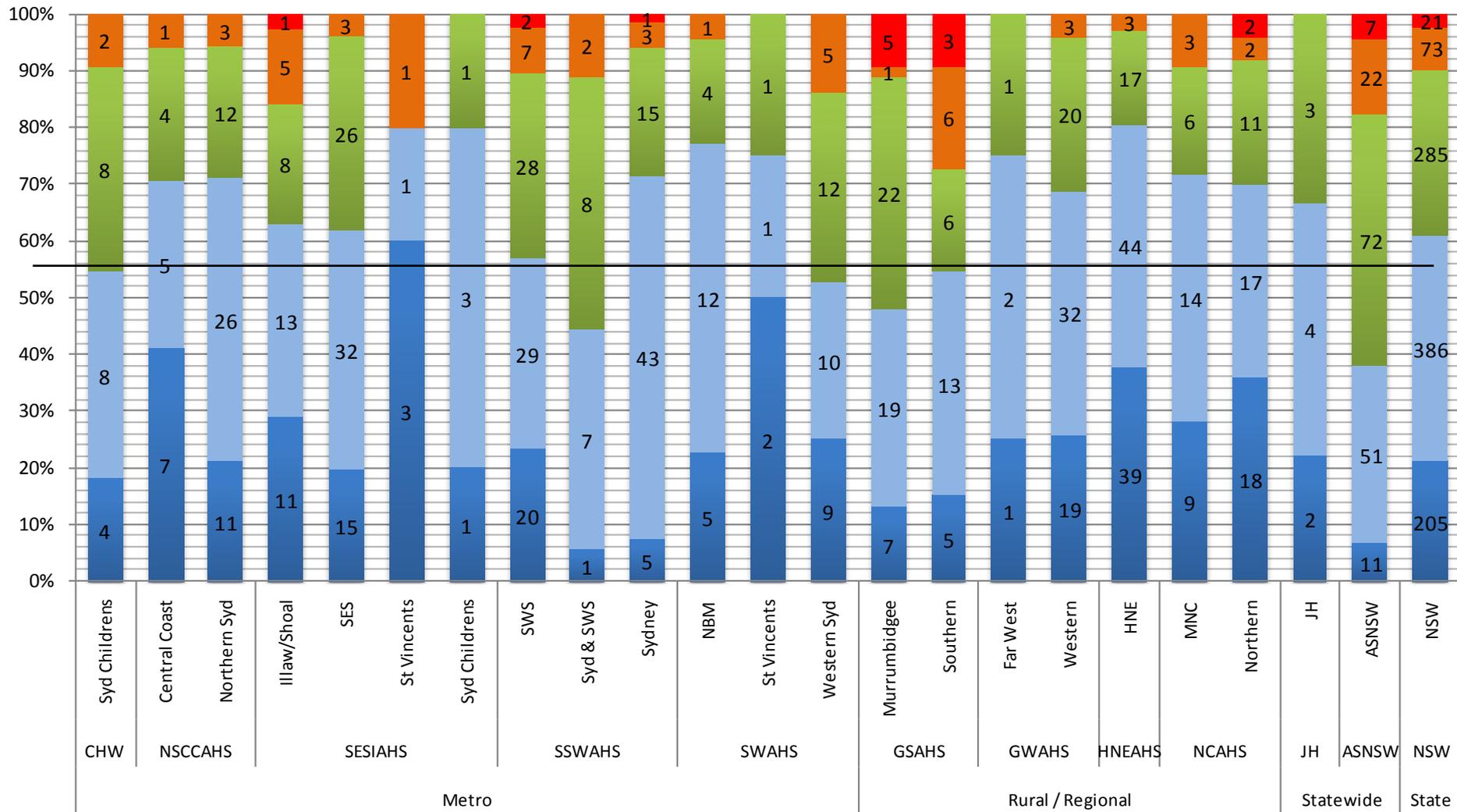
Overall the BTF has benefitted patient safety in our dept/unit/district/station

Strongly Agree Agree Neutral Disagree Strongly Disagree



**Our BTF clinical lead (champion) has been critical to the uptake and acceptance of the program by clinicians in our dept/unit/station/district**

Strongly Agree Agree Neutral Disagree Strongly Disagree





**PREVENTING CENTRAL LINE INFECTIONS**

# **NSW Central Line Associated Bacteraemia – ICU Project**

AR Burrell, M-L McLaws, A Pantle, M Murgo, E Calabria



# Guideline and checklist



**Central Venous Catheter  
Insertion Checklist**

Facility Code

 -

**Patient Label**

Date of Procedure:  /  /

Name of Proceduralist:

Name of Assistant:

Name of Supervisor:

Where was the line inserted? ICU  ED  OT  Other  Specify \_\_\_\_\_

Catheter Type: Central  Dialysis  PICC  Other  Specify \_\_\_\_\_

Catheter Gauge:

Insertion Site: S/Clavian  Jugular  Femoral  C/Fossa  Biopital Groove  Other

Position: Right  Left  Specify \_\_\_\_\_

Is the Procedure? Elective  Emergency  Rewire  Replacement  U/Sound Guided

Number of Lumens: 1  2  3  4  5  Line Coating: Antibacterial  Antiseptic  None

Local Anaesth: \_\_\_\_\_ Name (Print):

Sedation: \_\_\_\_\_ Signature:

C  
E  
N  
T  
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*It is anticipated that this section of the form will be completed by the staff member assisting the proceduralist*

**BEFORE THE PROCEDURE** Undertake competency assessment (if unsupervised)? Yes  No

Did the proceduralist? Cleanse hands (2 minute hand hygiene with approved solution)? Yes  No

**DURING THE PROCEDURE** Prep procedure site with chlorhexidine/alcohol - 30 seconds for dry site; 2 minutes for moist site (esp. femoral) Yes  No

Did the proceduralist? Use large sterile sheet to cover patient? Yes  No

Wear sterile gloves and sterile gown during the line insertion? Yes  No

Wear hat, mask, and protective eyewear (A YES answer requires all to be worn.) Yes  No

Maintain sterile technique during procedure and dressing? Yes  No

Undertake multiple passes (>three) Yes  No

**AFTER THE PROCEDURE** Was dressing dated or date documented on ICU care plan? Yes  No

Was catheter position confirmed by fluoroscopy or CXR? Yes  No

Was catheter position confirmed by transducer? Yes  No

Did any of the following complications occur? Pneumothorax  Haemorrhage  Other  Malposition

Date of Line Removal:  /  /

Date Discharged from ICU:  /  /

CVC - related BSI detected: Yes  No

If yes- Date of Blood Culture:  /  /

Fax form to CEC at 02 9382 7548 when:  
Line removed or  
24hrs after patient discharged from ICU.

9328

This form is part of the Patient Medical Record and is to remain in Medical Records after it is faxed.

**HEALTHCARE ASSOCIATED INFECTIONS**  
**CENTRAL VENOUS CATHETER**  
INSERTION —  
STANDARD



**Related policy**

**Mandatory central venous catheter insertion principles**

- CVC insertion is a complex procedure requiring maintenance of a sterile field to reduce the risk of local or systemic infection.
- Only trained or experienced clinicians must insert a CVC. All clinicians new to the insertion of a CVC must complete a training program.
- Multiple attempts at CVC insertion increases the risk of mechanical and infective complications. An escalation procedure to minimise this risk should be followed.
- Careful ongoing maintenance of a CVC is essential. Refer to guidelines for post insertion care (insert hyperlink to guidelines).

**Central venous catheter defined**  
Central venous catheter (CVC):

- refers to an intravenous device with a tip ending in a major vein
- may have a skin entry point in the trunk, 'centrally inserted', or skin entry point through a limb, 'peripherally inserted'.

**Safe insertion - summary**

A proceduralist must comply with the following when inserting a CVC:

- Consider use of the subclavian insertion site.
- Seek procedural support from an assistant or supervisor.
- Perform hand hygiene.
- Put on full sterile personal protective equipment.
- Prepare insertion site using an approved solution.
- Use sterile sheet/s to drape the entire patient.
- Maintain sterile technique throughout the procedure.
- Secure and dress the CVC with a sterile transparent semi-permeable self adhesive dressing.
- Check CVC position using a transducer.
- Confirm the CVC position before use by fluoroscopy or x-ray.

- Passes by a **junior clinician** should be limited to two at the same site after which no further attempts at cannulation should be made and a change of proceduralist should occur.
- Number of passes by a **senior clinician** should be governed by clinical judgement. Where multiple insertion failure has occurred, the senior clinician should consider using an alternate proceduralist, radiological or ultrasound guidance.

**Pass**  
Skin puncture with the intention of cannulating a central vein.

**Multiple pass**  
More than one cannulation pass at the same insertion site.

**Insertion failure**  
Unsuccessful cannulation after a multiple pass or arterial puncture.

**The clinical team responsible for the patient must.....**

- Review the CVC daily.
- Remove the CVC as soon as practical.

**Escalation procedure**

Multiple passes as an insertion site may increase the risk of complications. Therefore it is recommended that:

**Assistance and supervision**

Only trained or experienced clinicians should insert a CVC. All clinicians new to inserting central lines in NSW must complete a training program that has both knowledge and practical components.

The minimum training requirements for CVC insertion are outlined in the CVC Training and Education Framework (insert hyperlink). Supervision requirements are also specified.

# Results

- Data on 10,890 line insertions
- Concurrent incident review:
  - Retained/lost guidewires
  - Arterial puncture
  - Multiple passes
  - Inadequately secured lines
  - Inadequate position check prior to use
  - Lack of access to ultrasound equipment
  - Policy breaches
- Training & supervision common themes
- Safety Alert for guidewires issued
- Training framework developed

### Checklist Compliance:

Competency assessed	48.3% (22.9% no, 28.8% missing)
<b>Hat, mask, eyewear</b>	<b>79.9%</b>
Hands washed 2 mins	91.6%
Sterile gown/gloves	95.9%
Alcoholic chlorhexidine prep allowed to dry	95.8%
Entire patient draped	93.4%
Sterile technique maintained	95.6%
No multiple passes	80.9%
Confirm position radiologically	74.3%
Other method to confirm placement	43.6% (44.7% no, 11.7% missing)

# Impact of compliance

- Non compliance with the 'clinician bundle':
  - relative risk of CLAB was RR 1.62 (95% CI 1.1-2.4, p=0.0178)
  - For central lines RR 1.99 (95% CI 1.2-3.2 , p=0.0037)
  - For PICC RR 5.08 (95% CI 1.03-25 , p=0.059)
  - Dialysis catheters – no difference
- If compliant with both 'clinician bundle' and 'patient bundle' then
  - risk of CLAB was RR 0.6 (95%CI 0.4-0.9, p=0.0103)



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## NSW Blood Budget 2008-2009

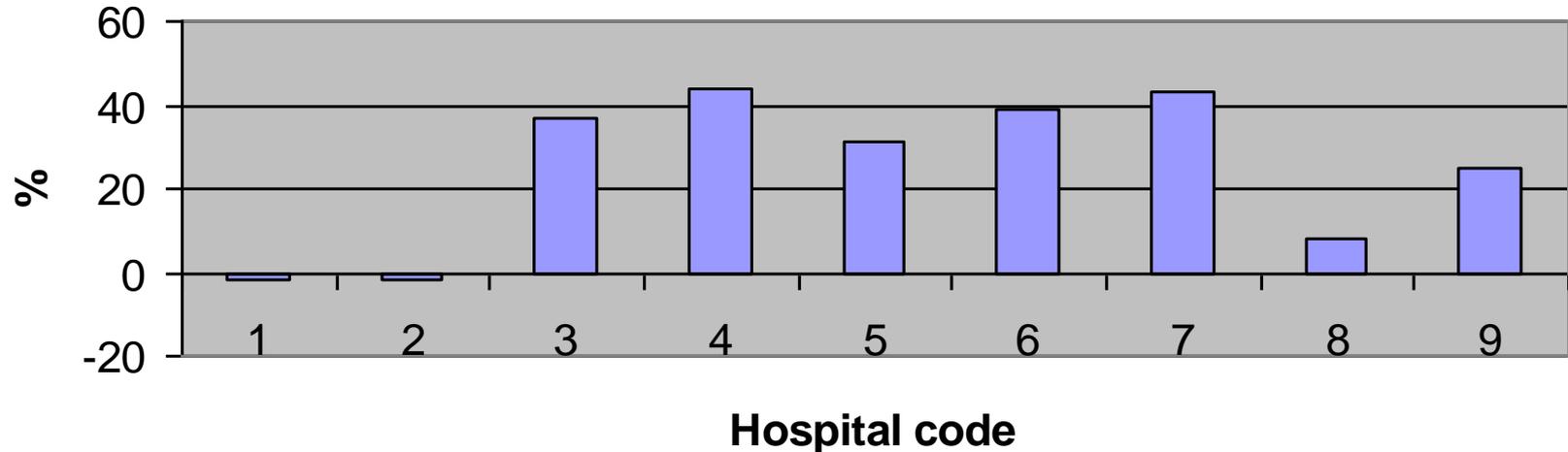
- NSW's total projected Blood Budget for the year 08-09 was **\$257,519,200**
  - made up as follows:
    - State contribution (37%) \$95,282,113
    - Commonwealth contribution (63%) \$162,237,087

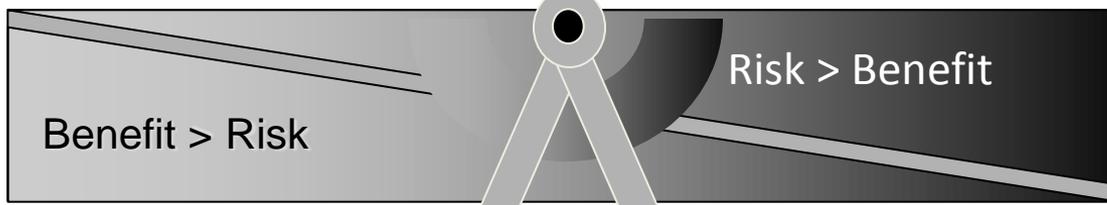
# Relative Use Database Metropolitan Hospitals

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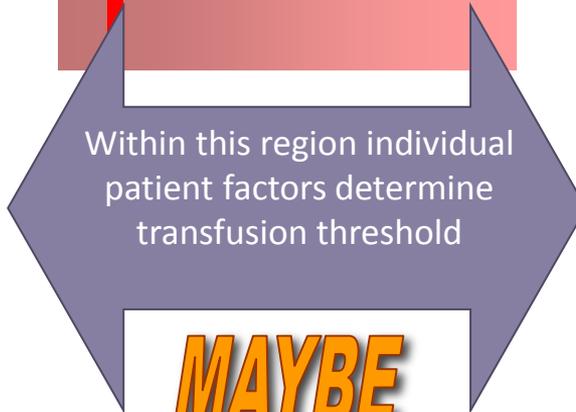
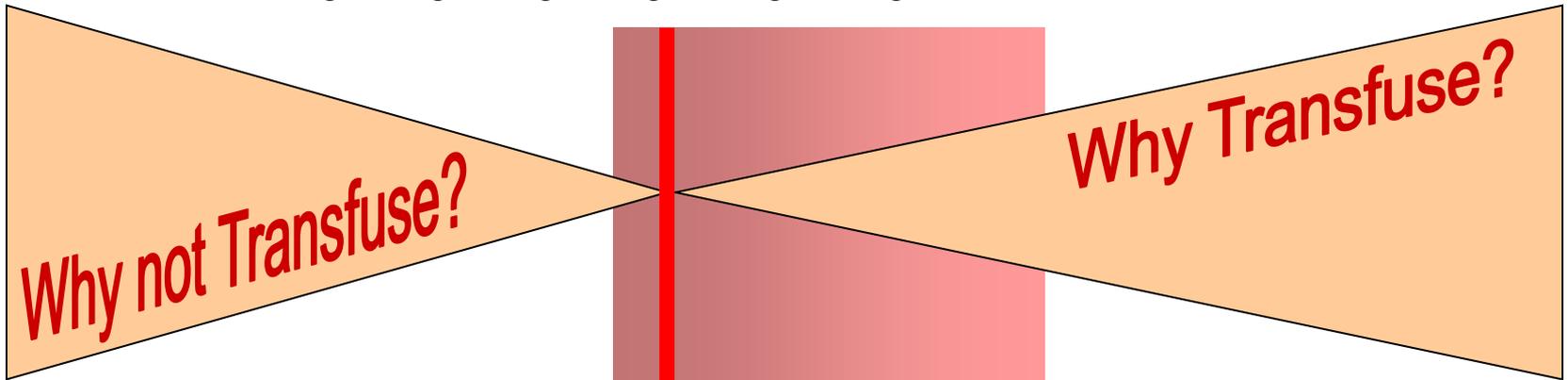
**Proportion of red cell transfusions occurring in metropolitan teaching hospitals which are either above or below the state average (2005-2006)**

*(calculated as casemix adjusted relative use index: source data CEC red cell data linkage project NSW)*





Haemoglobin g/L    4    5    6    7    8    9    100    110    120    130    140  
                          0    0    0    0    0    0



**LIKELY**

**UNLIKELY**

## Red Cell Audit Results 2007

---

- 12.7% anaemic & had surgery with Hb's under 105g/L
- 4% received transfusion with Hb's over 100g/L
- 95% had post-op transfusion with Hb's over 70g/L
- Standard dose 2 units

# Blood Myths & the Evidence

A blood transfusion will get my patient home sooner...

**MYTH BUSTED**

There is emerging evidence that patients transfused after surgery stay longer in hospital and have more infections following discharge.

The CRIT Study<sup>1</sup> shows that RBC transfusions are independently associated with longer ICU and hospital length of stay and increased mortality. Overall there were more complications in the patient cohort and the number of RBC units transfused was an independent predictor of worse clinical outcome.

Multivariate Analysis: The number of RBC units transfused was significantly associated with increased ICU and hospital LOS compared with patients who did not receive transfusions. Patients with a transfusion amount of 1 -2, 3-4, and >4 units had a corresponding increase in median ICU LOS of 2.1, 3.8 and 10.1 days, respectively, and an increase in median hospital LOS of 3.5, 6.7 and 16.6 days, respectively, as compared with the median ICU LOS of 4.6 days and hospital LOS of 11.3 days observed in patients who did not receive transfusions.

- In addition, a 2006 study<sup>2</sup> of blood transfusions during cardiac surgery concluded that there was
- a dose-dependent relationship between reductions in functional recovery for the patient and an increase in the units of red blood cells transfused.
  - a persistently negative, risk-adjusted effect on health-related quality of life after cardiac surgery that extends well beyond initial hospitalisation.

A blood transfusion is a living tissue transplant. With any transplant the human body is innately primed to react to something foreign. The safety implications of this are significant.

Remember—consider all the factors, not just Hb, before transfusing.

For details on these studies and best practice guidelines on blood transfusions go to: [www.cec.health.nsw.gov.au](http://www.cec.health.nsw.gov.au) and [www.transfusion.com.au](http://www.transfusion.com.au)



The CRIT study shows and blood transfusion is the only blood-derived product to be associated with increased mortality. However, recent APCCBS statistics show us that the risks of contracting transmissible viruses is a rare occurrence in Australia.



Blood Myth #2

Blood, it's safer than it's ever been...

**MYTH BUSTED**

Bacterial contamination, incompatibility reaction and transfusion-related acute lung injury (TRALI) are still the most common and most immediately dangerous complications of blood transfusion.

#### SERIOUS RISKS

Non Infectious Risk	RISK PER UNIT USED (Units/Donor collected)
Haemolytic reactions	
Acute	1:12,000 to 38,000
Delayed	1:4,000 to 12,000
Bacterial sepsis	
Platelets	1:100,000
Amphiphilic lipids deficiency	1:20,000 to 50,000
Fatal transfusion-related acute lung injury	Up to 1% of platelets transfused
TRALI	1:5,000 to 100,000
Transfusion-associated graft v host disease	Rare

Patients are often still concerned about the risk of Hepatitis or HIV from blood transfusions. However recent APCCBS statistics show us that the risks of contracting transmissible viruses is a rare occurrence in Australia.

#### VIRAL RISKS

Current estimated viral risks for Australian blood supply\*

HV	1 in 800,000
HCV	Less than 1 in 10,000,000
HTLV and I	Less than 1 in 10,000,000
HV	Less than 1 in 10,000,000

\*CDC Possible, not yet reported in Australia. Donors at risk excluded. \*Data estimates for risk of transfusion-transmitted hepatitis from APCCBS database, calculated using data from 1 January 2005 to 31 December 2006.

A recent review of incidents reported in RMS, the NSW healthcare reporting system, relating to blood or blood products shows that one of the most commonly reported incident types is specimen mislabelling, including wrong blood in tubes (WBIT). The importance of correct patient identification at the time of sample collection and labelling as well as the administration of transfusion is critical to patient safety.

For more information about adverse reactions to blood transfusions go to: [www.cec.health.nsw.gov.au](http://www.cec.health.nsw.gov.au) and [www.transfusion.com.au](http://www.transfusion.com.au)



NSW HEALTH



Blood Myth #1

Blood transfusions improve healing...

**MYTH BUSTED**

Current, emerging evidence shows that patients who receive blood transfusions are at greater risk of transfusion associated adverse outcomes such as infection, kidney failure, lung injury or death.

A recent study on red cell transfusions and nosocomial infections in critically ill patients<sup>3</sup> concluded that infection rate was higher in those patients transfused compared to those who weren't. Mortality and length of stay (intensive care unit and hospital) were significantly higher in transfused patients, even when corrected for illness severity.

Transfused patients, even after adjusting for survival probability, had significantly:

- Higher nosocomial infection (NI) rates (14.3% vs 5.6%; P < .0001)
- Longer ICU LOS (8.2 vs 3.3 days; P < .0001)
- Longer hospital LOS (18.3 vs 9.9 days; P < .0001)
- Higher mortality rates (21.8% vs 10.2%; P < .0001)

A blood transfusion is a living tissue transplant. With any transplant the human body is innately primed to react to something foreign. The safety implications of this are significant.

Remember—consider all the factors, not just Hb, before transfusing.

**GO** Hb < 70g/L  
Lower transfusion may be acceptable for patient without symptoms and/or where specific therapy is available.

**Caution** Hb 70-100g/L  
Likely to be appropriate during surgery associated with major blood loss or if there are signs or symptoms of impaired oxygen transport.

**Stop** Hb > 100g/L  
Not likely to be appropriate unless there are specific indications.

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For more information about appropriate transfusion practices go to: [www.cec.health.nsw.gov.au](http://www.cec.health.nsw.gov.au) and [www.transfusion.com.au](http://www.transfusion.com.au)



NSW HEALTH



Blood Myth #3



# Overall % of Reduction in Red Cell usage in NSW Teaching Hospitals for in Patients 2007-2008

<b>2006-2007 performance</b>	<b>Teaching Hospital</b>	<b>% improvement by hospital to previous year*</b>
Highest Relative use	A	-19%
	B	-24%
Intermediate	C	-5%
	D	2%
	E	2%
Lowest	F	-14%
	G	-8%

\*Overall hospital activity increased during 2007 -2008

- 
- overall 10% reduction in-patient red cell usage between 2005-2007.
  - This figure is an underestimate due to only hospital overnight admissions being included,
  - 9168 units were saved.
  - Equates to a direct product cost of approximately **\$2,383,855** savings across the State (based on AUD\$260 per unit). This figure is inclusive of Commonwealth Government's 63% contribution to the States blood budget.

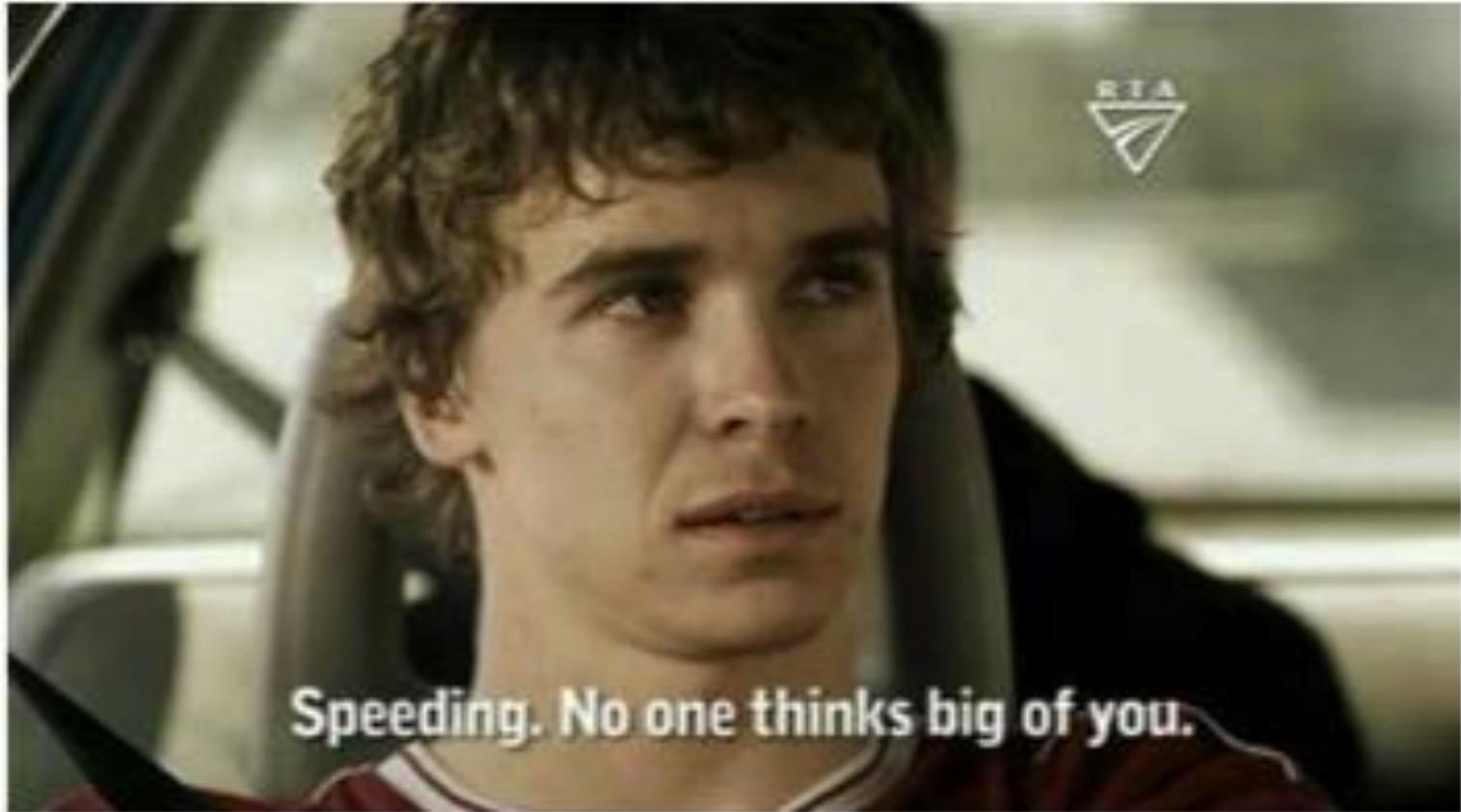


**the**Transfusion**question**

**the debate starts soon**

[www.thetransfusionquestion.com.au](http://www.thetransfusionquestion.com.au)

# Speeding

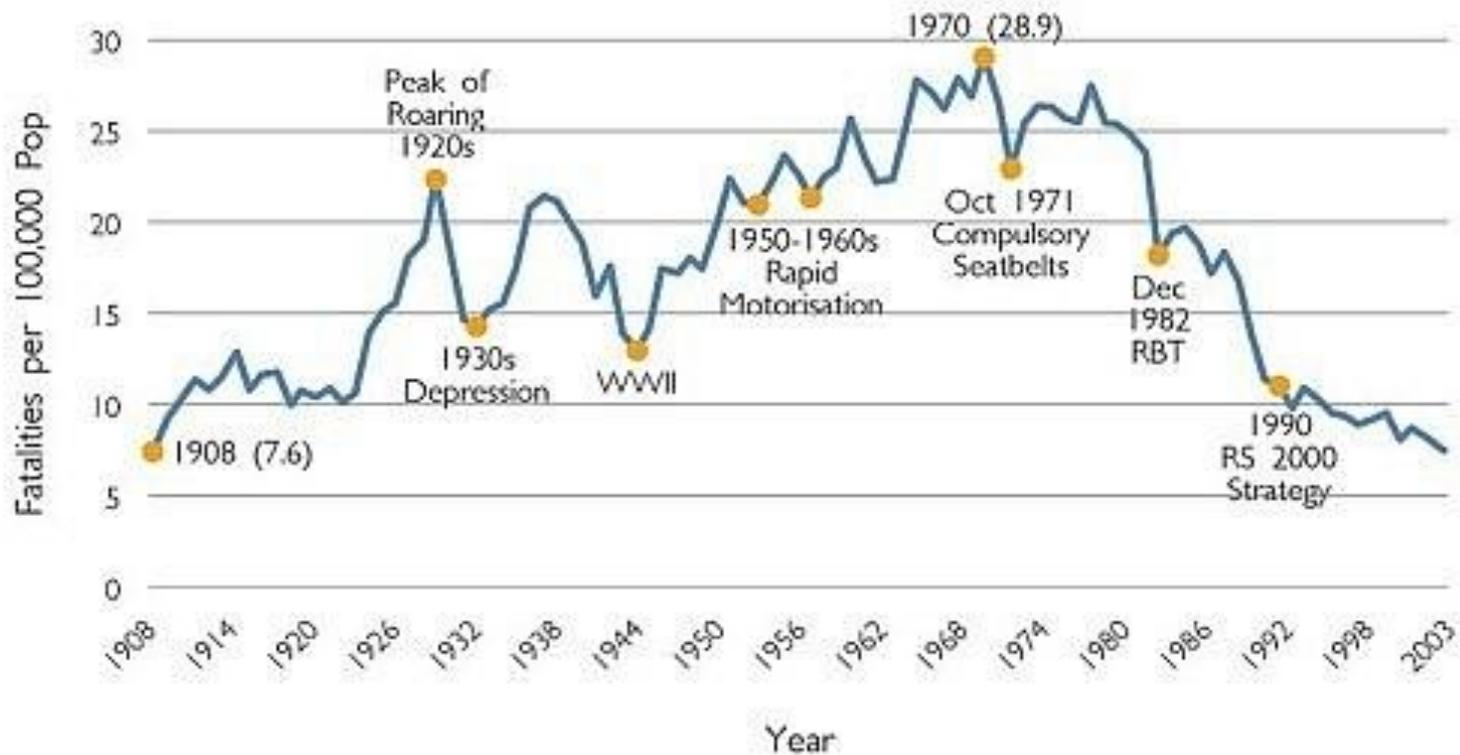


# CLIP EVERY TRIP

  
NSW  
GOVERNMENT | Transport



# NSW Statistics



# Broken Windows!



1. The Bronx  
10 minutes  
24 hours
2. Palo Alto  
1 week
3. Add a sledge hammer!  
Minutes  
a few hours!

Fig. 1.



K. Keizer et al., Science 322, 1681 -1685 (2008)

Published by AAAS

CF Hughes: 21 march 2012

Fig. 2.



K. Keizer et al., Science 322, 1681 -1685 (2008)

# The CEC Quality results



**BLOOD WATCH**  
*every drop counts*

10% reduction in inappropriate use  
of blood products  
\$2.3 million saving in direct product cost



60% reduction in central line associated  
bacteraemias in ICU  
5 to 8 lives saved  
\$2.4 million saving of additional costs  
associated with the infection



Over 150 clinical improvement projects  
were undertaken by the 2009 cohort



# Leadership setting the tone

- **“You must be the change you wish to see in the world”**

- Mahatma Gandhi